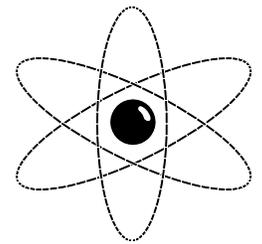


The TART Times



The newsletter for TART users

July 1996

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TART96 Now Available

TART96 is now available for use on a variety of computers. This is an improvement over TART95 that includes additional capabilities (see, below for details) and corrections, as well as improved speed. TART96 completely supercedes TART95.

The following table is based on running 68 fast critical assembly benchmark problems using the floor code TARTND on a CRAY-YMP, and TART95 and TART96 on a variety of computers.

Code	COMPUTER	Running Time (Seconds)	Ratio to TARTNP/CRAY-YMP	
TARTNP	CRAY-YMP	5396	1.0	
TART95	DEC-Alpha	1045	0.19	800 Model 5/300
TART95	IBM-PC	1793	0.33	PentiumPro/200
TART95	HP-735	2237	0.41	735/125 Mhz
TART95	CRAY-YMP	4912	0.91	YMP
TART95	IBM-RISC	7843	1.45	RS-6000
TART95	Power-Mac	7902	1.46	7500/100 Mhz
TART95	SUN	8292	1.54	Sparc 20
TART95	CRAY-J90	9678	1.79	J90
TART95	Meiko	9993	1.85	CS-2/66
TART95	SGI	10157	1.88	R4000/100 Mhz
TART95	IBM-PC	18437	3.31	486DX2/66 Mhz
TART96	DEC-Alpha	887	0.16	800 Model 5/300
TART96	IBM-PC	1607	0.30	PentiumPro/200
TART96	HP-735	1932	0.35	735/125 Mhz
TART96	CRAY-YMP	4505	0.83	YMP
TART96	SUN	5881	1.09	Sparc-20
TART96	Power-MAC	5912	1.09	7500/100 Mhz
TART96	IBM-RISC	6404	1.19	RS-6000
TART96	Meiko	7843	1.45	CS-2/66
TART96	CRAY-J90	8103	1.50	J90
TART96	SGI	8633	1.60	R4000/100 Mhz
TART96	IBM-PC	17093	3.16	486DX2/66 Mhz

New TART96 features

New Neutron and Photon Data

The TART 175 neutron groups and photon points have now been in use for almost 25 years. This data representation was selected based on the constraints of the size of computers available 25 years ago, and was only optimized for "fast" neutron and photon calculations. During 1996 a new neutron group structure and photon points will be incorporated in TART96. The new data representation is optimized for use across the entire range of neutron and photon applications.

The new neutron 650 group structure extends from 10^{-4} eV (the lower energy limit of our ENDL data base) up to 1 GeV. Currently neutron data is generally available only up to 20 MeV, but if and when data is available at higher energies TART96 will be ready to use it. The new 650 group structure is now available for use in TART96.

The new photon 650 point data extends from 10 eV (the lower energy limit of our EPDL data base) up to 1 GeV. EPDL already includes all of the data required, so that we can immediately extend photon calculations to higher energy. The new photon point data has not yet been incorporated in TART96, but should soon be available; watch future newsletters.

If you are a fan of the older 175 neutron and photon data and would prefer to use it, not to worry. TART96 is designed to use either the old or new data, so you are free to use whatever you prefer.

ENDF/B-VI, Mod. 3 Data Available

For use with TART96, in either 176 or 650 groups, you now have your choice to use the ENDL data, that has been traditionally used by TART, or the latest version of the ENDF/B data, namely ENDF/B-VI, Mod. 3.

The ENDL data has been optimized for use in fast neutron applications, e.g., MeV neutrons. In contrast the ENDF/B-VI, Mod. 3 data has been optimized for a wider range of neutron energies; particularly for slower neutrons, e.g., resonance region and thermal neutrons.

Which data library should you use? It depends on your application. For advice on specific applications contact Red Cullen.

Still to Come Later in '96

New photon data, as described above

New Multi-Band Data for improved resonance self-shielding

TARTAID, the next generation of interactive graphics

What Extensions Do You Need?

If in planning the extensions for TART96 there is something that we have overlooked and you need for your applications, please contact Red Cullen, so that we can discuss your needs.

This same message was in the preceding newsletter (Jan. '96), and since that time we have received a number of excellent suggestions that have already been incorporated in TART96, and users are already using these new features in their applications. So don't be shy. If you have a suggestion please let us hear it.

TART95 Documentation is Still Available

There are still a few copies of the TART95 documentation available. If you are a TART95 user, for a copy of the TART95 documentation contact Red Cullen, as soon as possible, before the few remaining copies are gone.

Interesting Applications

If you have an interesting TART application that you would like to include in this newsletter and share with our readers, please contact the editor of this newsletter, Susan Mangels at 2-1521 (smangels@lnl.gov).

Do You Need Help?

If you need help using TART contact Red Cullen at 3-7359. If you are having problems with a TART input deck send it to cullen1@lnl.gov.